**Catalogue of American Amphibians and Reptiles.**

MARTOF, BERNARD S. 1975. *Pseudotriton.*

## *Pseudotriton* Tschudi
## Red salamanders

*Pseudotriton* Tschudi, 1838:60. Type-species *Salamandra subfusca* Green, 1818 (= *S. rubra* Latreille in Sonnini and Latreille, 1801 [Harper, 1940]) designated by Fitzinger, 1843.

*Mycetoglossus* Bonaparte, 1839 : fasc. 26. Substitute name for *Pseudotriton* Tschudi 1838, hence with the same type species.

*Batrachopsis* Fitzinger, 1843:34. Substitute name for *Pseudotriton* Tschudi 1838, hence with the same type species.

*Pelodytes* Gistel, 1848:11. Substitute name (not *Pelodytes* Fitzinger) for *Pseudotriton* Tschudi 1838, hence with the same type species.

*Bolitoglossa* Dumeril, Bibron, and Duméril, 1854:89 (in part).

• CONTENT. Two species are recognized: *Pseudotriton ruber* and *P. montanus.*

• DEFINITION. Adults are 67 to 195 mm in total length. They are fully transformed, stout, short-legged, and strikingly colored brownish to orange or reddish, with scattered black spots but no lineate patterns. The tail is short, keeled, and without a basal constriction. Other important characteristics are: eyes well developed and functional, premaxillae fused, parietal-otic and squamosal-otic crests double, orbitosphenoids well developed, anterior and posterior vomerine teeth continuous, tongue free all around and protrusible (adetoglossal, Uzzell, 1961) with lingual cartilages and no genioglossal muscles, usually 18 trunk vertebrae, transverse processes of trunk vertebrae extend beyond zygapophyses, 6 to 8 costal interspaces between adpressed limbs, digits 4–5, testes simple, not multiple. The larvae have well developed gills, each with two rows of fimbriae. The dorsal fin arises near the hind limb insertion and balancers are absent.

• DIAGNOSIS. The genus most confused with *Pseudotriton* is *Gyrinophilus.* Adult *Pseudotriton* are more terrestrial and have a stouter body; the snout is narrower, shorter, more rounded, and lacks a canthus rostralis. *Pseudotriton* have a more massive, rigid skull, the frontal processes of the premaxilla are fused, and the nasals are broad and usually separated from the maxillae. In *Gyrinophilus* the premaxillae usually do not fuse and the nasals appear later in ontogeny. In *Eurycea* the transverse processes of the trunk vertebrae do not extend beyond the zygapophyses and (with the exception of *E. aquatica*) the anterior and posterior vomerine teeth are discontinuous. No paedogenetic or troglodytic *Pseudotriton* are known. *Stereochilus* is detoglossal (the tongue is attached anteriorly) and has 18–20 trunk vertebrae. The oral epithelium of *Pseudotriton* contains extensive capillary networks (Elkan, 1958).

The larvae of *Pseudotriton* resemble those of *Eurycea* and *Gyrinophilus*, but *Pseudotriton* have 16 or 17 costal grooves whereas *Gyrinophilus* have 17–20, and sympatric *Eurycea* have 15 or fewer. Also, each *Eurycea* larva has a double row of light spots on a light colored dorsal band. The frontal processes of the premaxilla fuse in *Pseudotriton* larvae attaining a snout-vent length between 26 and 45 mm, but in *Gyrinophilus* they never fuse. The nasals of *Pseudotriton* are about as wide as long, never in contact with the maxilla and formed before metamorphosis. In contrast, the nasals of *Gyrinophilus* are greatly elongated, in broad contact with the maxilla, and formed during metamorphosis. Larval *Pseudotriton* have a rounded snout and large eyes. The snout of *Gyrinophilus* is elongate, rather truncate, and slightly turned up at the tip; the eyes are small. For additional comparative data see Eaton, 1956 and Brandon, 1967. *Gyrinophilus* attain sexual maturity immediately after metamorphosis whereas *Pseudotriton* do not mature until 2 years after metamorphosis. *Gyrinophilus* lay fewer eggs per clutch than *Pseudotriton* (Bruce, 1969).

• DESCRIPTIONS. The two species of *Pseudotriton* are generally sympatric and similar in size, coloration and morphology. Habitat overlap occurs in areas with few competing plethodontid species (Bruce, 1968) but reproductive isolation is complete. See definition and diagnosis for references on descriptions at generic level. For additional references see Martof (1975a, 1975b).

• ILLUSTRATIONS. Martof and Rose (1962) illustrated cranial characters distinguishing *Pseudotriton*, *Gyrinophilus*, and *Eurycea.*

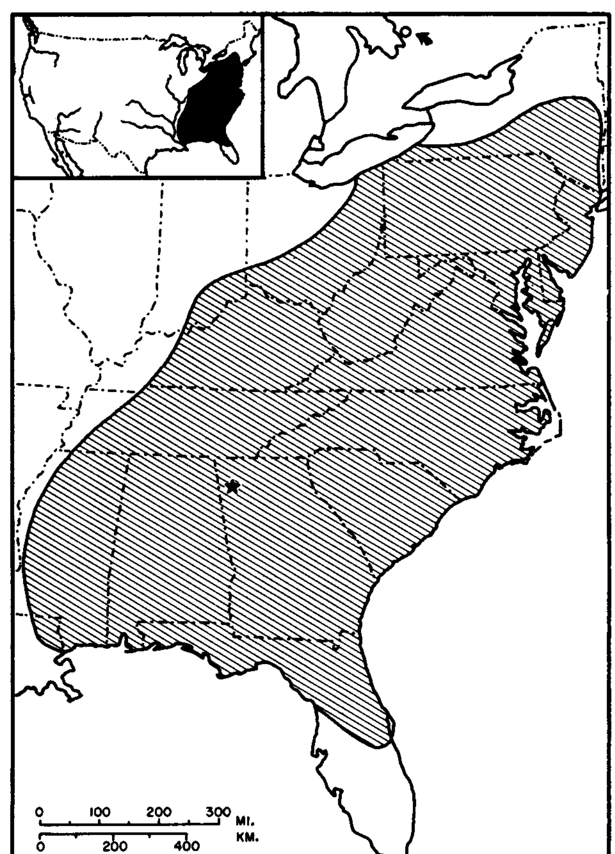
• DISTRIBUTION. This genus occurs as an apparently disjunct population in Ontario, Canada (McCoy and Durden, 1965) and then throughout the eastern United States from New York and Indiana southward to Louisiana and mid-Florida. The primary habitat is slow-moving, thermally stable, permanent springs and seepages. Adults burrow in the banks of streams and also occur in more terrestrial habitats: under stones, decaying logs and leaf masses in forests and fields.

• FOSSIL RECORD. Holman (1967) reported presacral vertebrae of *Pseudotriton ruber* from Pleistocene deposits near Rome, Georgia and gave characters useful for generic identification of fossils.

• PERTINENT LITERATURE. The most comprehensive work on the biology of *Pseudotriton* is by Bruce (1968). Other useful references include Dunn (1926), Bishop (1943), von Wahlert (1957), Martof and Rose (1962), and Wake (1966). For references on distribution and geographic variation see Martof (1975a,b). See Reynolds and Pickard (1973) for a comparative study of hematocrit and Piatt (1935, 1940) for a discussion of the hyobranchial apparatus.

• KEY TO SPECIES. Catalogue account numbers are in parentheses.

Iris brown; snout short, 1¼ to 1½ times the horizontal diameter of eye, and strongly convex above; black spots on body round and widely separated; no trace of dark line from eye to nostril; dorsal ground color sharply separated from that of venter; old animals tend to become melanistic and dark spots become obscure but do not fuse .......... *montanus* (166)




MAP. Geographic distribution of the genus *Pseudotriton.* The star marks a Pleistocene fossil locality.

— Iris yellow; snout 1½ to 2 times the diameter of eye, and flat or only slightly convex above; black spots on body irregular and profuse; at least a faint trace of a dark loreal line; dorsal ground color blends gradually with that of venter; as animals become older and melanistic the dark spots enlarge and tend to fuse .................. *ruber* (167)

• Nomenclatural History. For almost a century after its description the generic name *Pseudotriton* received little attention. Its main proponent was Baird (1849). Meanwhile, the species of *Pseudotriton* were usually grouped with those of *Gyrinophilus* and *Eurycea* in the genus *Spelerpes* Rafinesque (Cope, 1889), or the species of *Pseudotriton* were classified as *Eurycea* Rafinesque (Stejneger and Barbour, 1917). Dunn's (1926) classic treatise on the Plethodontidae did much to reinstate *Pseudotriton.* After a consideration of the ontogeny of the anterior cranial elements, Grobman (1943, 1959) noted the similarity of *Gyrinophilus* to *Pseudotriton* and recommended subgeneric status for *Gyrinophilus.* This prompted Organ (1961) to lump the two genera. Later reevaluation of morphology and ecology by Martof and Rose (1962) led to separation of the genera. This arrangement received further support from Brandon (1966) and Wake (1966).

• Remarks. Noble (1931) stated that the coloration of *Pseudotriton* was of no adaptive value, but others (Howard and Brodie, 1971, 1973; Brodie and Howard, 1972) observed that birds avoided the toxic red eft (*Notophthalmus*) and the palatable *Pseudotriton* and concluded that *Pseudotriton* is a Batesian mimic of the eft. Pough (1974) questioned their conclusion primarily because of the secretiveness of *Pseudotriton* and the absence of "models" in certain parts of the range of *Pseudotriton.* Huheey and Brandon (1974) clarified the mimetic relationship between the two genera.

• Etymology. *Pseudotriton,* of masculine gender, is from the Greek *pseudes* meaning false or deceptive and *Triton,* a sea-god. *Triton* was also the generic name of some common European salamanders.

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